Multidisciplinary Team Collaboration The Good The Bad and The Ugly

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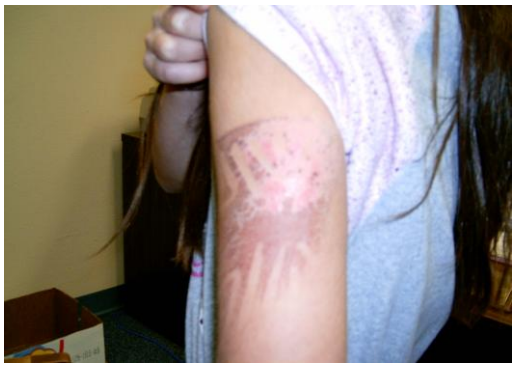
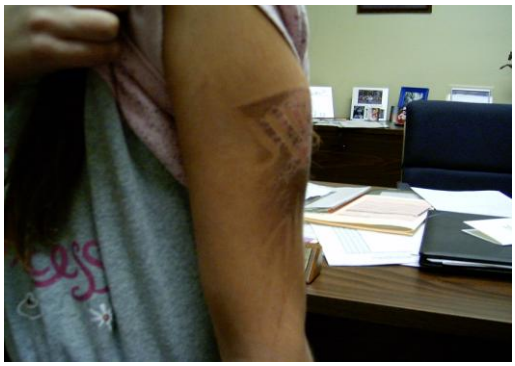
The "Good"

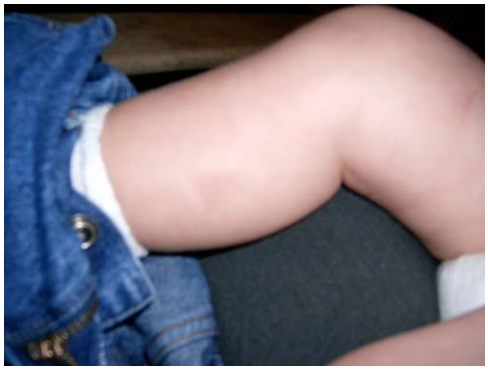
- "The Falling Iron"
- "Which Iron Did It?"
- "Sister Saves the Day"

The "Falling Iron"

- 8 yo girl referred to CPS due to burns on arm
- At hospital, child states she received burns when an iron fell of a window sill
- The iron then landed on her 2 yo brother's leg

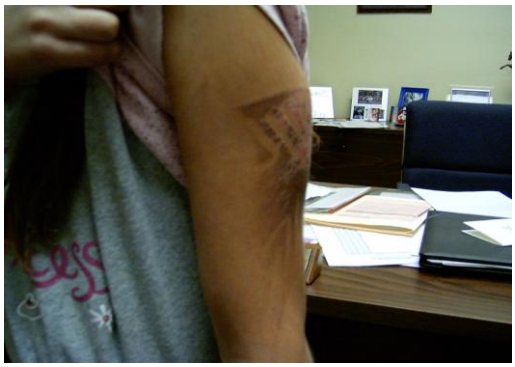


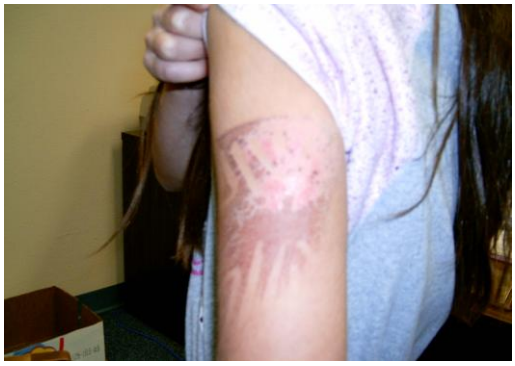




Based on the history and pattern of the burn, your assessment is:

A. The pattern is consistent with a hot object tumble injury as the child describes
B. The burn pattern is inconsistent with the proposed mechanism
C. Neglectful supervision is the greatest concern
D. The family is cooperative and believable, and has no risk factors. The case should be closed.



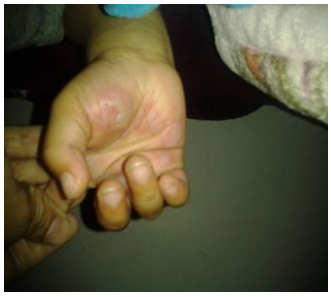


Take Home Points

- Teamwork between investigators and medical-forensic professionals is critical
- Often, a child victim will not disclose the truth until he/she is in a safe situation

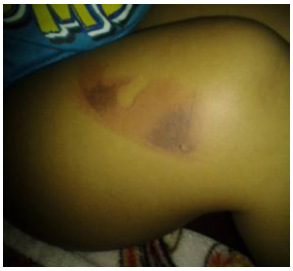
"Which Iron Did It?"

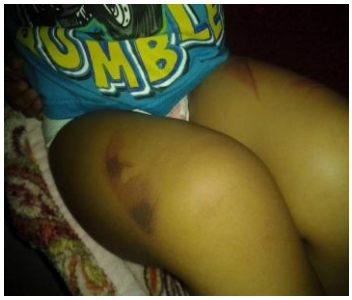
- 2 yo child noted at mom's house to have burns on hands
- Mom takes child to PCP
- Mom tells PCP that the child received burns from touching recently ironed clothes
- PCP notes burns on hands, but does not disrobe the child

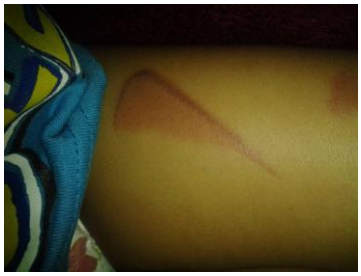


"Which Iron Did It?"

- PCP provides treatment for the burned hands
- Mom then drops child off at father's house
- Father notes burns to legs





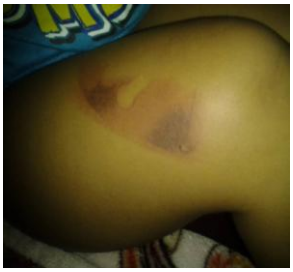


"Which Iron Did It?"

- Father brings child in to ER
- Case is reported to CPS
- Mother claims that the leg burns happened at father's house

"Which Iron Did It?"

- CPS contacts SCAN
- SCAN asks CPS to go to mom's home and father's home to get all of their irons



Mom's two irons.

Dad's iron.

"Which Iron Did It?"

- In a court hearing, in an attempt to further understand where the burns occurred, the judge asks if the burns can be timed by their appearance
- ????????

Take Home Points

- Teamwork between investigators and medical-forensic professionals is critical
- Investigators can obtain information that medical-forensic personnel cannot
- All it takes is one “idiot” and the entire process falls apart
- A nicer way: each of us has a very important job!

The Bad

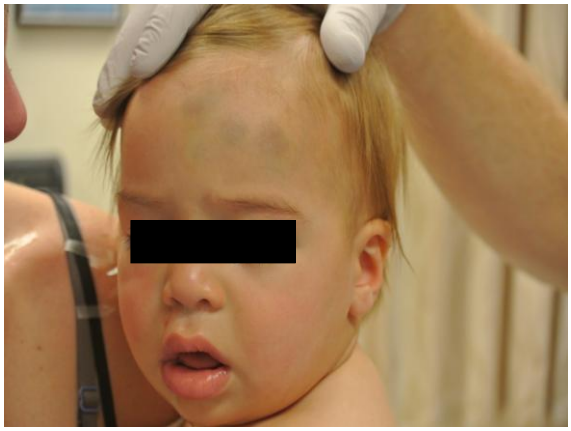
- “Who is in Charge of What?”
- “The Deck Did It”
- “Swing and a Miss”

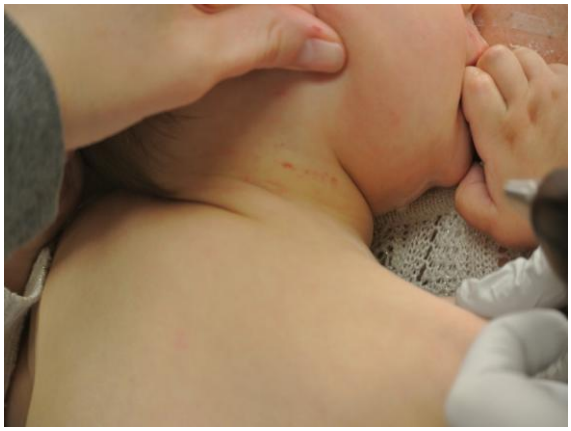
“Who is in Charge of What?”

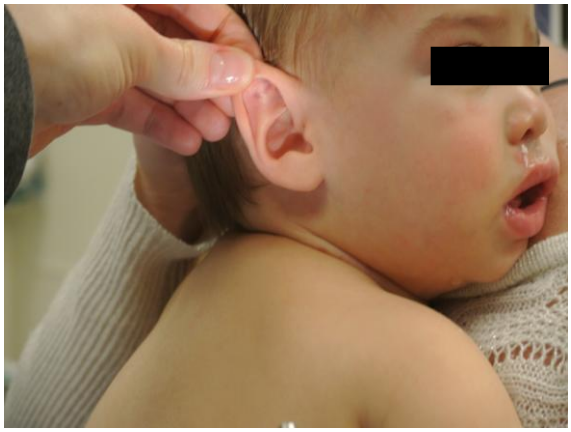
- 10 mo brought to ER for vomiting, diarrhea
- Bruising noted on forehead by daycare provider

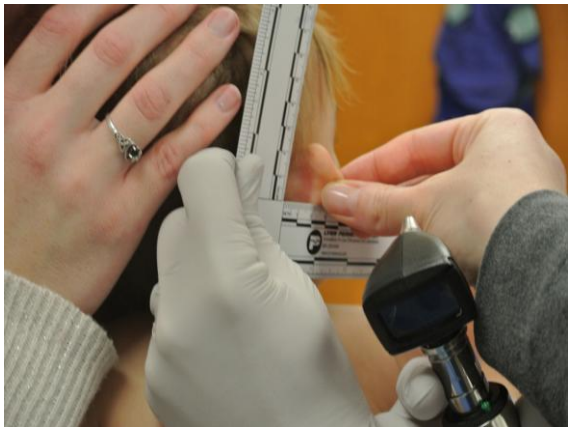
"Who is in Charge of What?"

- 2 days ago, returned from daycare and refused to bear weight on right leg
- This improved over the next day
- This AM, mom specifically noted no bruises on the child's forehead
- 4 hours into daycare, provider calls mom to tell her that the child has vomited 5 times and has bruises on his forehead
- Mom and daycare provider meet at ER









Bruising-Abuse

TABLE 1 Suspicion of Child Abuse in Ambulatory Children on the Basis of Characteristics of Bruises[14,15,17]

Less Suspicious for Child Abuse	More Suspicious for Child Abuse
Forehead	Location
Under chin	Face
Elbows	Ears
Lower arms	Neck
Hips	Upper arms
Shins	Trunk
Ankles	Hands
	Genitalia
	Buttocks
	Anterior, medial thighs
	Pattern
	Slap or hand marks
	Object marks
	Bite marks
	Bruises in clusters
	Multiple bruises of uniform shape
	Large cumulative size of bruising

Case History

- CPS and LE called
- Child sent home with mom
- No contact with daycare
- 1 yo in daycare as well
- Recommended that this child be brought in for medical evaluation
- LE and CPS refuse to assist with this

Law Enforcement-MD

- LE tells MD, “I’ve been doing this for 30 years and there is no way this child was abused.”
- States the skin findings are scratches, not bruises (has not ever seen the child)
- Tells the MD that she doesn’t know what she is doing

Follow-Up Appointment

Fracture identified as present in retrospect on first ED visit

Case Resolution

- CPS: “Both daycare and mom are appropriate, so we unsubstantiated the report.”

Data!

- Bruising on the neck, ears, in clusters is highly concerning for abuse Maguire 2005
- Nearly 12% of household contacts of abused children < 5 years old have fractures on skeletal survey Lindberg 2012
- 25% of CPS workers think that physicians should not make recommendations regarding medical evaluations of contact children Berger 2010

Take Home Points

TABLE 1 **Steps Proposed to Improve the Collaboration Between Professionals Evaluating and Investigating Suspected Abuse**

1. Expand training to include education about the roles of the other professionals involved in the evaluation and/or investigation of suspected child abuse.
2. Change CPS procedures to require medical consultation for those specific allegations of abuse that include medical assessment.
3. Reduce CPS workload to allow sufficient time for an adequate investigation including time to investigate scene, discussion with medical professionals, etc.
4. Clarify confidentiality requirements to allow for relevant information sharing between CPS and medical providers.
5. Establish teams of medical, CPS, and law enforcement professionals.

Goad 2010

Take Home Points

- Children benefit when MDT members stay within their roles
- Siblings/contacts of abused children deserve a medical-forensic evaluation
- A “risk assessment” is not a method to determine if a child’s injuries are abusive in nature

“The Deck Did It”

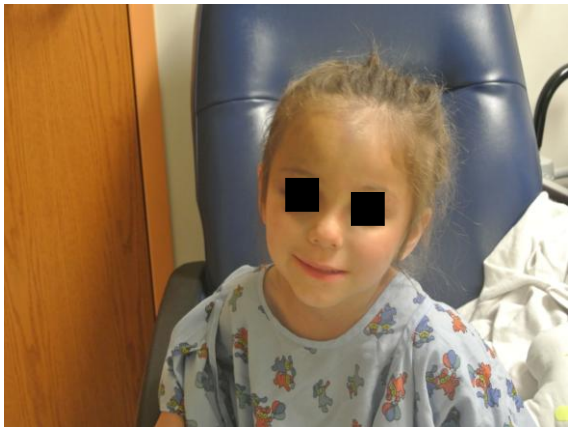
- 4 yo child reportedly fell down stairs of a deck
- Later that day, head swelling/bruising noted
- Child brought to medical care by mother
- Skull x-ray negative, child sent home
- Reported to CPS

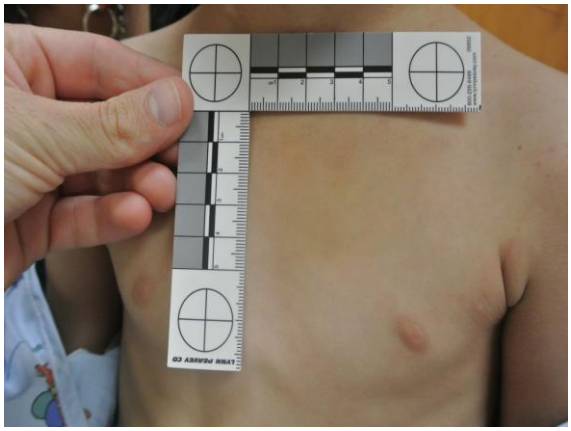
“The Deck Did It”

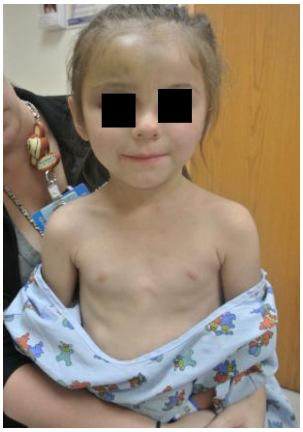
- CPS worker went to home
  - Interviewed mother
- Decided the fall down the stairs was the cause of the child’s findings
- Closed case

“The Deck Did It”

- Child brought back to medical care 2 days later due to sleepiness
- ER doctors concerned regarding possible abuse





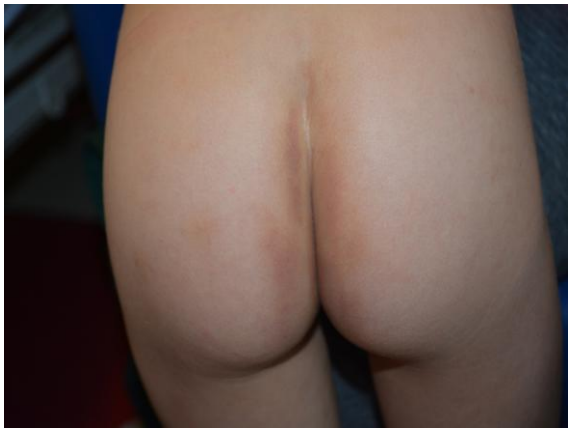


“The Deck Did It”

- ER documents bruising on forehead
- Neck petechiae
- Bruised chest
- Re-reported to CPS
- CPS states they already investigated and closed the case

“The Deck Did It”

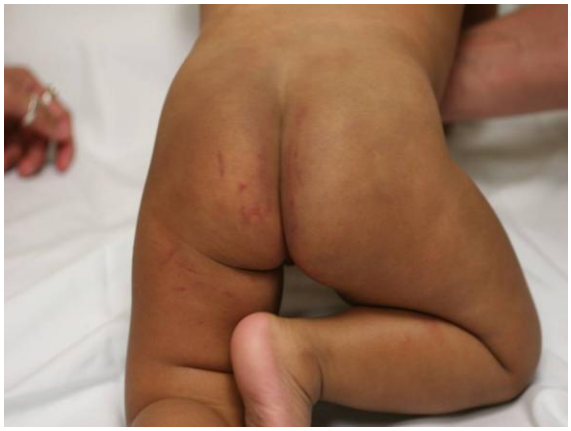
- CAP consultant finds more bruising not noted in the ER



Data!

Patterned Abusive Bruises of the Buttocks and the Pinnae
KENNETH W. FELDMAN
Pediatrics 1992;90;633

- Case series of vertical gluteal cleft bruising
- Pattern not caused by object, but by the anatomy of the impacted tissue
- Caused by violent spanking, with the “sides” of the cleft pressing against each other as the child is hit



Case Progression

- CPS refuses to present the case to the Juvenile Officer
  - Claims they already investigated and closed
- Medical team takes custody (legal in MO)
  - Independently contacts the JO

Case Resolution

- After 5 days, the JO petitions the court and the court takes custody
- While being transported to foster care the child discloses:
  - She was hit by mom's boyfriend on head, choked, and spanked
  - She doesn't want to go home again
  - Is afraid of her mother

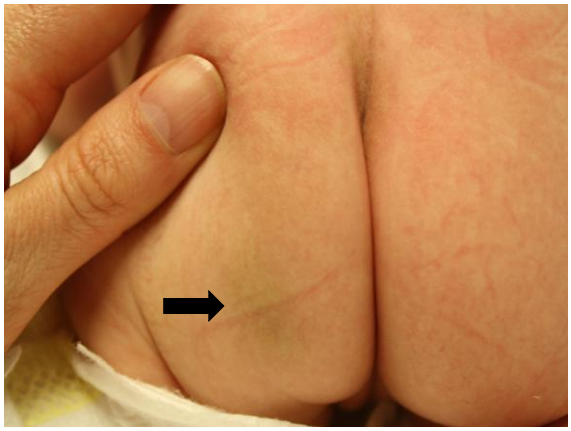
Take Home Points

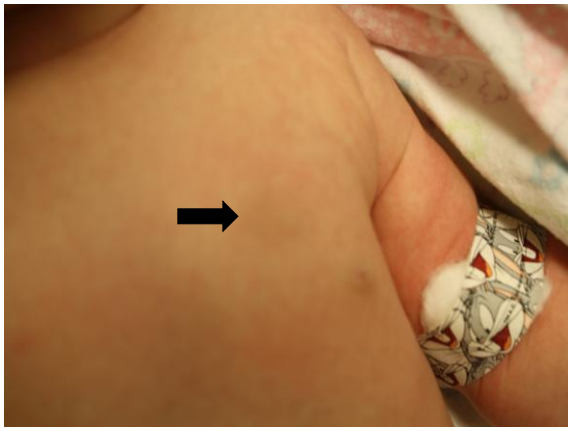
Understanding Roles and Improving Reporting and Response Relationships Across Professional Boundaries
John Goad
Pediatrics 2008;122:S6; originally published online August 1, 2008;
DOI: 10.1542/peds.2008-0715d

1. Medical providers need to examine the child's entire body
2. "Nice" people lie
3. Understand and define your respective roles
4. Respect professional boundaries
   - Goes both ways
5. We should be on the same team

“Swing and a Miss”

- 5 week female presents to ED for not using right leg normally in past 24 hours
- Bruising noted on physical exam
- Hx. of injury- 1 week ago in Dad’s arms in a recliner when he fell asleep and she fell off his lap landing flat on her back. He took her to Mom who was in another room, patient comforted easily. Bruising to buttocks appeared the next morning. No other hx. of trauma or injury





Evaluation

- Moves all extremities equally with no swelling or TTP noted.
- Skeletal Survey- No fractures
- Parents unsure how bruise obtained by eye- may be from pt. head jerking forward and hitting Mom collar bone while being carried. Bruise on chest may have been caused by new puppy or buckle on car seat rubbing. Leg injury may be from when fell out of Dad's arm.

What work up should be done?

A. Liver Function tests
B. Imaging of the head
C. Skeletal Survey
D. All of the above

Occult Head Injury in High-Risk Abused Children
David M. Rubin, Cindy W. Christian, Larissa T. Bilaniuk, Kelly Ann Zazyczny and Dennis R. Durbin
Pediatrics 2003;111:1382-1386

- 37% of "high-risk" children have occult head injury on Head CT
- "High-risk criteria" include:
- Age < 6 mo
- Rib fracture(s)
- Multiple fractures
- Facial injury

Why Get LFTs?

- Around 5% of abused children have *occult* internal abdominal injury
- Elevated LFTs necessitate an abdominal CT in children with injuries concerning for abuse

Utility of Hepatic Transaminases to Recognize Abuse in Children

Lindberg et al. Pediatrics. 2009;124:509-516.

Results

- Head CT, LFTs and Skeletal Survey are all normal

What should you do now ?

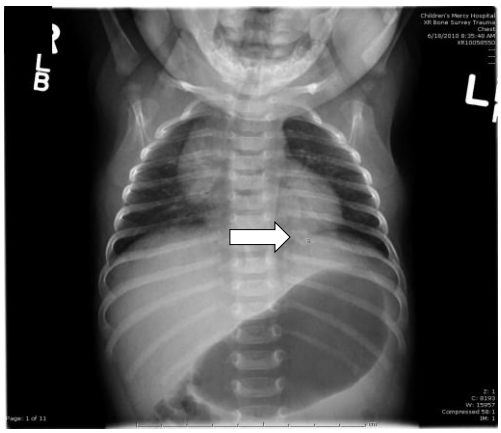
1) Discharge the child home as there is no concern for abuse
2) Contact Children's Protective Services (CPS) and let them decide whether or not to send the child home
3) Discharge the child and then contact CPS due to concerns of poor parenting skills
4) Admit the child pending further investigation

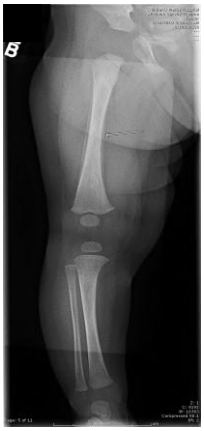
Why admit the child?

- Over 25% of abused children have a previous, “minor” abusive injury
  - 80% of “minor” injuries are bruises
  - 66% occur prior to 3 months of age (Sheets 2013)
- An abused child returned to an unsafe home is at 50% risk for additional injury and 10% risk of death (Green and Haggerty 1983)
- Bruises in an immobile infant are nearly always due to abuse (Sugar 1999)
- Incidence of Abusive Head Trauma peaks around 9-12 weeks of age

Follow Up

- Diagnosis: Child Physical Abuse
- Bruising in a 1 month old child, in the absence of a reasonable mechanism or a medical condition, is diagnostic of child abuse. History of short fall to the ground from father’s arms does not explain the buttock bruising, as the buttock is a soft area that is not near a boney prominence. Additionally, the child has other bruises (face/chest) and no reasonable history to explain these. The child is not mobile. Bruising, in an otherwise well child, is not caused by the child using a pacifier, a seat belt buckle, normal handling or other benign interactions.
- Recommendation: That the child be removed from the home setting at this time due to the life-threatening risk of child abuse at this child’s age.





Take Home Point

- Follow up matters!
- The medical evaluation of abuse is often NOT a one-time visit!

Role of CPS/Law Enforcement

- The “old” way of thinking: “It’s up to the police to figure it out”
- Incorrect diagnoses, either way, are disastrous
- Reality: The medical system has an obligation to provide appropriate and continuing medical feedback to investigators
- Creating a more accurate/proficient medical response to child abuse is necessary

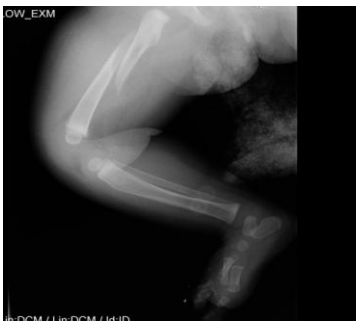
The Ugly

- “Communication Breakdown”
- “Plausible Doesn’t Mean Accidental”

“Communication Breakdown”

- A 2 yo is admitted to the hospital with a femur fracture
- Prior to admission, the child was placed into protective custody
- Review of the records indicates that this child was in foster care for a year due to previous abuse
- During that time period, mom was diagnosed with terminal breast cancer

“Communication Breakdown”



1 year of age

"Communication Breakdown"

- Original fracture: child fell while running, but unwitnessed
- Child was reported to CPS, eventually placed in foster care due to "physical abuse"
- No CAP consultation

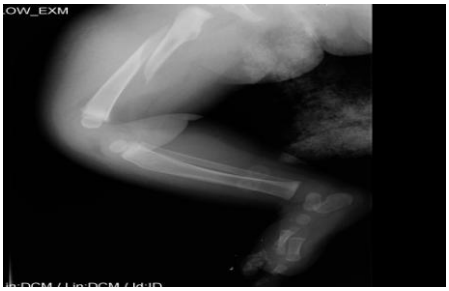
"Communication Breakdown"

- Child brought to bone metabolism clinic for court ordered Osteogenesis Imperfecta testing
- Child placed in foster care prior to test results
- Several weeks later: tests + for OI type 4
- No one informed foster parents or CPS

"Communication Breakdown"

- Child returned to parents after 1 year in foster care (no one aware child has OI)
- 2 days later, child breaks other femur while running

"Communication Breakdown"



2 yo femur fracture

"Communication Breakdown"

- CAP consultation identifies previous consultation/OI results

Data!

- Femur fracture (spiral or otherwise) often occur accidentally in young mobile children
- Immature bone in femurs in young children is susceptible to fracture
  - Especially with "torque" or twisting

Blakemore 1996, Pierce 2005

Child Abuse & Neglect 33 (2009) 481–489

Contents lists available at ScienceDirect

Child Abuse & Neglect

Is the diagnosis of physical abuse changed when Child Protective Services consults a Child Abuse Pediatrics subspecialty group as a second opinion?

James Anderst[a,*], Nancy Kellogg[b], Inkyung Jung[c]

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[b] Division of Child Abuse Pediatrics, UT Health Science Center San Antonio, USA
[c] Department of Epidemiology and Biostatistics, UT Health Science Center San Antonio, USA

- Subjects were first evaluated by a "non-CAP" physician, then by a "CAP" physician
- Diagnoses regarding physical abuse compared

Data!

Table 2
Comparison of diagnoses provided to CPS by non-CAP physicians and CAP physicians working in concert with CPS (overall).

CAP diagnosis	Non-CAP physician diagnosis			
	Abuse (%)	Nonabuse (%)	Total (%)	Kappa (95% CI)
Abuse	50	9	59(51.3)	.14(−.02,.29)
Nonabuse	40	16	56(48.7)	
Total	90(78.3)	25(21.7)	115(100)	

Changes in 40% of cases.
80% of changes from abuse to nonabuse
Most valuable information from scene investigation by CPS

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Child Abuse & Neglect

Is the diagnosis of physical abuse changed when Child Protective Services consults a Child Abuse Pediatrics subspecialty group as a second opinion?

James Anderst[a,*], Nancy Kellogg[b], Inkyung Jung[c]

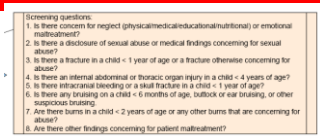
- Cases from rural areas 3x as likely to have a changed diagnosis
- Conclusions:

1) CPS often isn't provided with a medical diagnosis regarding abuse
2) Consultations with child abuse experts often results in a change in diagnosis
3) Child abuse experts often change a diagnosis from abuse to nonabuse

Take Home Points

- Communication and follow-up are key!
- Hospital systems need to be designed to provide a “safety net” to catch misdiagnosed children

Potential Screening Policy


Screening questions:
1. Is there concern for neglect (physical/medical/educational/nutritional) or emotional maltreatment?
2. Is there a disclosure of sexual abuse or medical findings concerning for sexual abuse?
3. Is there a fracture in a child < 1 year of age or a fracture otherwise concerning for abuse?
4. Is there an internal abdominal or thoracic organ injury in a child < 4 years of age?
5. Is there intracranial bleeding or a skull fracture in a child < 1 year of age?
6. Is there any bruising on a child < 6 months of age, buttock or ear bruising, or other suspicious bruising
7. Are there burns in a child < 2 years of age or any other burns that are concerning for abuse?
8. Are there other findings concerning for patient maltreatment?

- Neglect terms are accompanied by definitions
- Ages for injuries are based on epidemiology of abuse
- A pre-written policy reduces the influence of your emotions/relationships
- All cases meeting the above criteria require SW/CAP notification

Plausible Doesn’t Mean Accidental

14 mo fell off a couch, unwitnessed, noted to be limping by mom’s boyfriend later that night. Brought into emergency room and diagnosed with transverse mid-shaft femur fracture of right leg.

Plausible Doesn't Mean Accidental

How do you evaluate the fracture in this child?

A. The fracture is accidental because transverse femur fractures are unlikely to be inflicted

B. Obtain a skeletal survey. This fracture was unwitnessed in a very young child.

C. Call the police. If mom's boyfriend was involved, it's always abuse

Femur Fractures

- 80% of femur fx in children younger than walking age and 30% of femur fx in children <4 yo found to be abusive
- Spiral fractures in children less than 6 yo no more likely to be abusive, but more likely to be investigated for abuse
- Specifically in falls, transverse 33%, spiral 37%, oblique 14%
- Confirmed child abuse: transverse 36%, spiral 36%, oblique 7%

Gross 1983, Scherl 2000

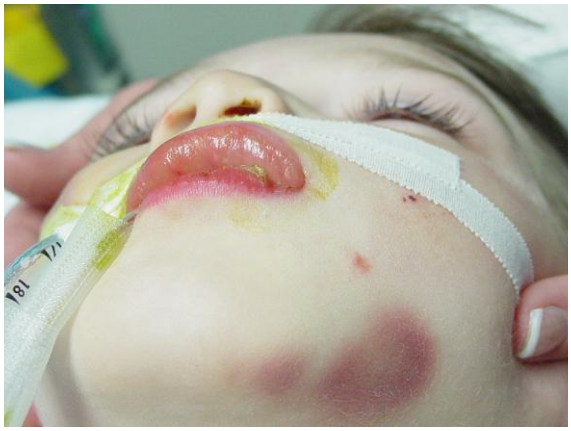
Femur Fractures

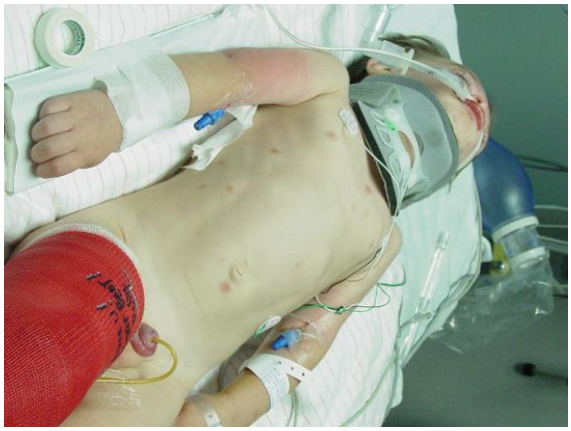
- Non-ambulatory children: 42% of femur fractures due to abuse
- Ambulatory children: 2.6% of femur fractures due to abuse
- Conclusion: developmental status and history of event most important

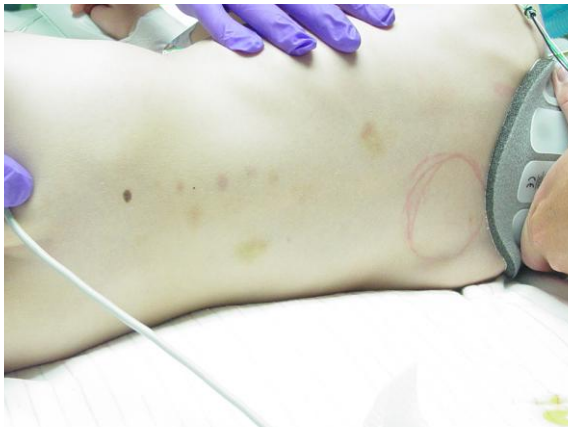
Schwend 2000

Plausible Doesn't Mean Accidental

- Child sent home
- No CPS report filed
- The child was brought to the ER two days later after being left in the care of the boyfriend again





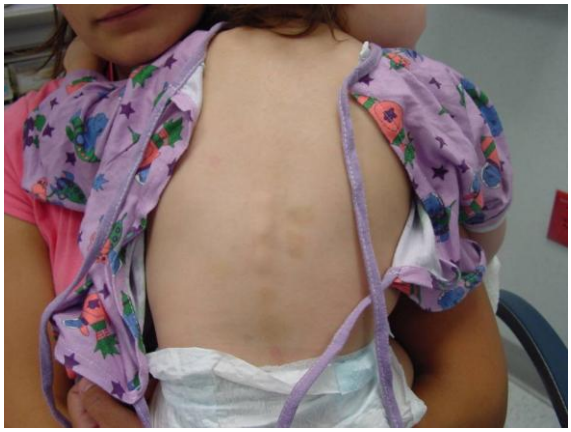


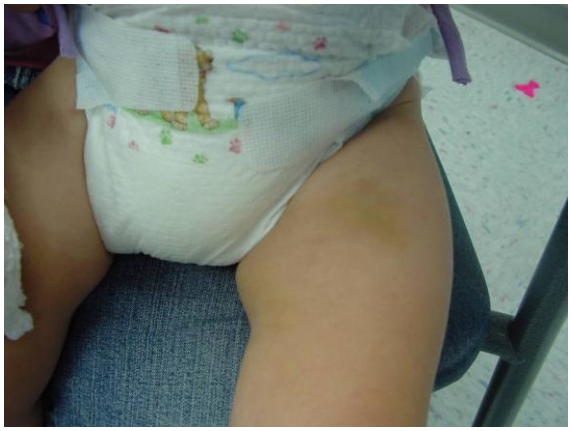
Take Home Points

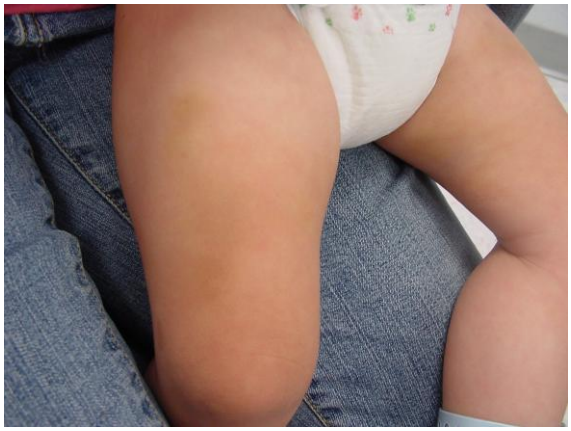
- **Even when the child is ambulatory, obtain a detailed history**
- **Exact sequence of events (mechanism), height of fall, onto an object?, who witnessed?**
- **Unwitnessed injuries require special consideration**
- **This is hard work!!**

Sister Saves the Day

- 10 month old presents for well child check
- Several bruises are noted on the child's legs and back
- Mom states that she doesn't know how the bruises happened, but that the child is starting to "cruise" and falls frequently







What is the next step in the evaluation?

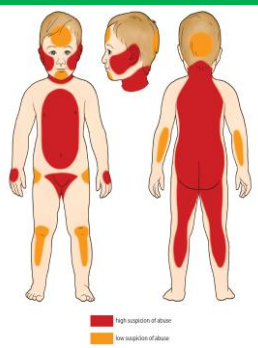
A. None, the child's developmental abilities can account for such bruising
B. Admit the child to the hospital and call CPS as the bruises are diagnostic of abuse
C. Continue to the investigation as the bruises are suspicious for, but not diagnostic of, abuse
D. Initiate a bleeding work-up

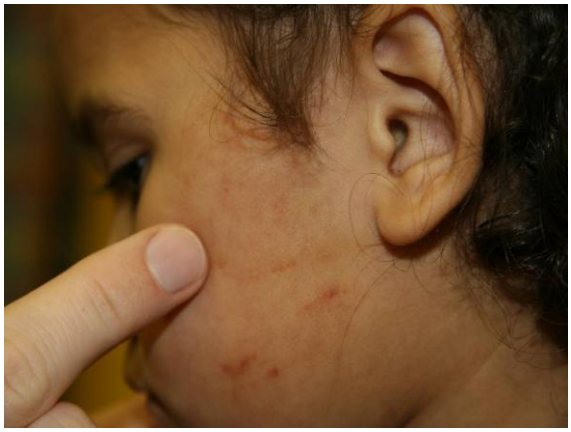
Bruising

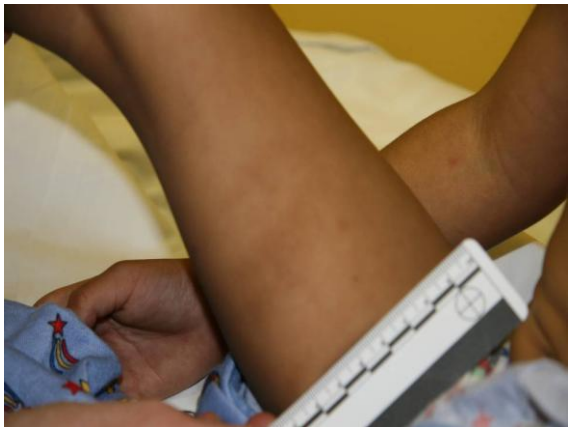
- "Those who don't cruise rarely bruise"
- 0.6% of children < 6mo and 1.7% of children < 9 mo had any bruises
- Non-cruisers: 2.2% with bruises
- Cruisers: 17.8% with bruises
- Walkers: 51.9% with bruises

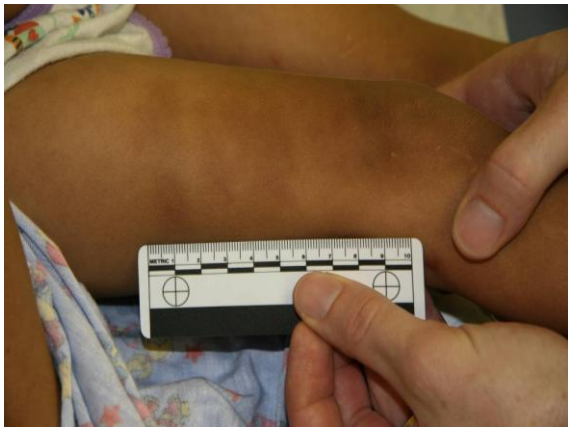
Sugar 1999

Bruising









Take Home Points

- Siblings often hold the key to diagnoses and identifying perpetrators
- All children with findings concerning for abuse should be seen by a medical provider with pediatric forensic expertise

Conclusion

- Medical-Investigative Collaboration is key to improving child/family outcomes
- “Risk” is different than “Diagnosis”
- Each member of the MDT should
  - “stay in their lane”
  - be able to explain/justify their decisions to other MDT members